

## Alliance GHG Implementation Questions for EPA Work Shop September 23, 2010

	Topic	Reference	Issue/Question
<b>CREE Related:</b>			
1	<b>Alternative DF's for N2O, CH4, and other CREE constituents.</b>	<p><i>Per(m)(2)(iii) for 2012 through 2014 model years, manufacturers may use alternative DFs.</i></p> <ul style="list-style-type: none"> <li>- For N2O, the alternative DF to be used to adjust FTP and HFET emissions is the DF determined for NOX emissions.</li> <li>- For CH4, the alternative DF to be used to adjust FTP and HFET emissions is the DF determined for NMOG or NMHC emissions.</li> <li>- Optionally, per (m)(3), and in lieu of determining emission-specific FTP and HFET DF's for CH3OH (methanol), HCHO (formaldehyde), C2H5OH (ethanol), and C2H4O (acetaldehyde), manufacturers may use the DF determined for NMOG or NMHC emissions.</li> </ul>	<p>Additive DFs are absolute values of emission deterioration for each emission constituent, thus it is not appropriate to apply an additive DF from one emission constitute to another because each has a different emission standard.</p> <p>→ We believe EPA should allow alternative DFs using good engineering judgment.</p> <p>(e.g. Example for NOx and N2O, additive DF for N2O = additive DF for NOx/(NOx std./N2O std.)</p> <p>→ EPA should allow manufacturers more flexibility in establishing DFs for these new constituents (N2O, CH4, etc.).</p>
2	<b>CREE for a sub configuration using ADFE for CAFÉ</b>	<p><i>Minimum data requirements for the manufacturer's average fuel economy and average carbon-related exhaust emissions, for the purpose of calculating the manufacturer's average fuel economy and average carbon related exhaust emissions under S600.510.</i></p>	<p>According to this requirement, to calculate fleet average CREE, we will use emission data from EDV and FEDV that are also used for CAFÉ calculation. However, when we use ADFE for a sub configuration for CAFE, we do not have any emission data(CO2/THC/CO).</p> <p>→ How should this be managed?</p> <p>→ Will EPA address policy/procedures for ADFE application to GHG?</p> <p>How does EPA intend to handle analytically derived CREE? We assume that EPA intends to develop equations and rules similar to ADFE, is this correct?</p> <p>Will there be a different method for calculating analytically derived CREE for 2009-2011 early credit calculations vs. 2012 and beyond? (i.e., would manufacturers just be able to convert</p>

			their ADFE value to an analytically derived CREE value by use of a conversion factor, 8887 for gasoline?) Can mfrs use fuel economy values converted to CO2 from (CAFE)-MPG (using factor 8887) or do we have to use actual tested CO2 results [g/mile]?
3	FFV issue		600.113-12(l) includes a methanol term in CREE and fuel economy calculations for ethanol-fueled vehicles. However, we believe that methanol emissions for ethanol-fueled vehicles will be zero or below limits of detection of existing analyzers. Does EPA agree that methanol emissions from ethanol-fueled vehicles will be negligibly small? If not, does EPA plan to measure those emissions in their lab?
4	Calculation		It is unclear if 600.113-12(g) requires full useful life (FUL) values for all constituents used for CREE calculations or whether it applies only to N20 and CH4. Please clarify requirements.
5	Verify & CREE Implementation		<p>→ Is EPA going to be implementing a fleet-average CREE calculation program into Verify?</p> <p>Regarding updates to Verify that affect CAFE/GHG, what is the status of the new Verify CAFE xml schema. Also, when will EPA and manufacturers meet and have discussions about upcoming system changes? In the June 17 EPA Industry meeting it was announced that meetings would be scheduled soon. When will EPA and manufacturers begin testing and having working meetings?</p> <p>→ If so, how will EPA inform manufacturers as to what inputs to the system will be required (i.e. meetings, workshop). Will manufacturers be required to submit early credit calculations (2009-2011 MY) into Verify?</p>
<b>Standards Related:</b>			

6	<b>Cold Temperature standards and Altitude Requirements</b>	<i>For vehicles that comply with the cold temperature NMHC standards described in §86.1811–10(g) and the CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> exhaust emission standards described in §86.1818–12, manufacturers must submit an engineering evaluation indicating that common calibration approaches are utilized at high altitudes.</i>	→ Does this mean manufacturers must submit an engineering evaluation for CO <sub>2</sub> , N <sub>2</sub> O and CH <sub>4</sub> ? (Even when we comply to N <sub>2</sub> O std. with statement according to 86.1829-01( b )(1)(iii)(G)) Shouldn't the submittal of the engineering evaluation have been given as an optional way of complying in to the "Testing at high altitude" requirements in 86.1829-01(b)(1)(ii) rather than being a "must submit"?
7	<b>High Altitude Standards</b>	<i>Our understanding is that CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> emissions also have to meet compliance with high altitude standards, similar to the other emission constituents.</i>	→ Can EPA confirm this understanding? → If this understanding is correct, can EPA clarify how a manufacturer should prove CO <sub>2</sub> high altitude compliance since the in-use CO <sub>2</sub> standard will be determined as 1.1 x New vehicle CO <sub>2</sub> .
8	<b>Durability demonstration procedures for GHG emission standards.</b>	<i>Per § 86.1818–12.</i>	→ Timeline for demonstration: Because 2012MY durability has begun, is it acceptable to demonstrate by MY report timing (90 days after the end of 2012MY)?
9	<b>In-Use CO<sub>2</sub></b>	<i>86.1818-12(d) In-use CO<sub>2</sub> exhaust emission standards., there is a incorrect reference to "600.113-08(g)(4)", should be "600.113-12(g)(4)". In 600.113-12(g)(4), there is an incorrect reference to "600.113(a) and (b)", 600.133(a) and (b) deal with calculating FTP and HWFE fuel economy not CREE.</i>	→ EPA typos, as noted in the Reference column. → When establishing/calculating in-use CO <sub>2</sub> standards, EPA says that the value should be based on the subconfiguration value and if no subconfiguration value is available, the value should be based on model type. When determining whether data exists for the subconfiguration, are we only to consider actual test data or do we also include data substitutions and/or analytically-derived data?
<b>N<sub>2</sub>O Related:</b>			
10		<i>The complexity of N<sub>2</sub>O testing requirements raise</i>	→ Will EPA accept extended use of N <sub>2</sub> O compliance statement

	<b>N2O Measurement</b>	<p><i>significant concerns, for example:</i></p> <p><i>(i) Facilities – require significant upgrades specific to analyzers and software, and</i></p> <p><i>(ii) Lab Efficiency – collection of DF and cert data will constrain lab throughput due to potential void and maintenance issues.</i></p> <p>• <u>Reference Attachment- “Lab Issues Associated with N2O Measurement Requirement”</u></p>	<p>beyond 2014 MY?</p> <p>→ Issues remain regarding N2O measurement – including, but not limited to cost, and implementation.</p>
<b>A/C Related:</b>			
<b>11</b>	<b>A/C Idle Testing</b>	<i>Testing of vehicles that have dual AC systems, or front and rear seat cooling systems, or cooler box options, are not addressed in the regulation</i>	<p>→ Should the rear A/C system be operational when conducting the A/C idle test?</p> <p>→ Is 33% optional equipment criteria applicable to A/C idle test vehicles?</p>
<b>12</b>	<b>Default to re-circulated air mode</b>	<i>Per the regulation, AC-CO2 credits would not be applicable for a system, as described below: “When system does not default to re-circulated air with closed-loop control of the air supply, but operators can select more efficient AC operation with re-circulated air with closed-loop control of the air supply.”</i>	<p>→ Does EPA allow CO2 credit on applications which activate a more efficient AC operation mode using re-circulated air with closed-loop control of the air supply?</p> <p>(For example, ECO type switch.)</p>
<b>13</b>	<b>Improved condensers and/or Evaporators.</b>	<i>Demonstration, certification and approval process are unclear and 2012MY certification timing presents a concern because 2012MY certification is already underway.</i>	<p>→ When and how should manufacturers demonstrate COP of the system is improved higher than 10%?</p> <p>→ Regarding AC system which achieves 10% or higher COP improvement, will EPA consider additional credit beyond 1.1g?</p>
<b>14</b>	<b>Oil Separator</b>	<i>Demonstration, certification and approval process are unclear and 2012MY certification timing presents a concern because 2012MY certification is already underway.</i>	<p>→ When and how should manufacturers demonstrate Oil Separator effectiveness?</p> <p>(i.e. At least 50% of the oil entrained in the oil/refrigerant mixture exiting the compressor returns it to the compressor housing or compressor inlet)</p>
<b>15</b>	<b>Early A/C Credit</b>	<i>Manufacturers that are required to comply with California greenhouse gas requirements in model</i>	→ Need clarification on the inclusion of A/C credits in the early credit pathways. Some of the regulatory language appears to

	<b>Provisions</b>	<i>years 2009-2011 (for California and section 177 states) may not generate early air conditioning credits for vehicles sold in California and the section 177 states as determined in paragraph (a)(2)(i) of this section</i>	disallow any A/C credits in certain pathways from California and Section 177 states, which is inconsistent with the preamble as well as the overall logic of the program. → Will EPA provide clarification on the inclusion of A/C credits in the early credit pathways?
<b>Miscellaneous:</b>			
<b>16</b>	<b>Upstream Emissions</b>	<i>(i) Regarding the calculation of upstream emissions for ATV credit, there is no clear calculation of EC(for EV); ECF, CREE_CD, CREE_CD_GAS, CREE_CS (for PHV); and CREE_up(for FCV) in S600.111-08(f). (ii) As for PHV emission, when considering upstream (= CREEcd + CREEcs), the fact that UF (Utility Factor) is not applied seems to be inconsistent.</i>	→ How will EPA address these Upstream calculations in the future? (i.e. EPA to address in Label rule later this year?)
<b>17</b>	<b>Early Credit Pathways</b>	<i>Pathway 1 states that "Total U.S. model year sales data will be used, instead of production data," as well as the preamble stating, "...manufacturers using Pathway 1 or 2 will use year-end car and truck sales in each category."</i>	For early credit pathways, we believe total U.S. production should be also allowed, as this is consistent with the CAFE calculation procedure. → Can we use total U.S. production for early credit calculation of pathways? We believe EPA really meant to copy the following verbiage from the model type average fuel economy calculation in 600.510-12(b)(2)(ii): <i>"Total model year production data...will be used instead of sales projections."</i>
<b>18</b>	<b>Regulatory Text Correction/Typo</b>	<i>The description in 40CFR 86.135(d) of the GHG final rule reverts to the description from the 1990 MY version. We believe this was an oversight. Details of text below:  Current → 86.135-12(d) Practice runs over the prescribed driving schedule may be performed at test point, provided an emission sample is not taken, for the purpose of finding the minimum throttle action to maintain the proper speed-time relationship, or to permit sampling</i>	Request that EPA amend the regulatory text to reflect the previous/correct language contained in 86.135-00(d).

		<p><i>system adjustment. Note: When using two-roll dynamometers a truer speed-time trace may be obtained by minimizing the rocking of the vehicle in the rolls; the rocking of the vehicle changes the tire rolling radius on each roll. This rocking may be minimized by restraining the vehicle horizontally (or nearly so) by using a cable and winch.</i></p> <p><i>Previous → 86.135-00(d)</i> <i>Practice runs over the prescribed driving schedule may be performed at test point, provided an emission sample is not taken, for the purpose of finding the appropriate throttle action to maintain the proper speed-time relationship, or to permit sampling system adjustment. <u>Both smoothing of speed variations and excessive accelerator pedal perturbations are to be avoided.</u> When using two-roll dynamometers a truer speed-time trace may be obtained by minimizing the rocking of the vehicle in the rolls; the rocking of the vehicle changes the tire rolling radius on each roll. This rocking may be minimized by restraining the vehicle horizontally (or nearly so) by using a cable and winch.</i></p>	
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